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Enhancing Privacy through the Visual Design of Privacy Notices: Exploring the Interplay of Curiosity, Control and Affect

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Abstract

Privacy policies are the initial communicators of the services' data handling practices. Yet, their design seldom ensures users' privacy comprehension or provides people with choices around their information management, resulting in negative feelings associated with the sign-up process. In this paper, we investigate how to improve these conditions to enhance privacy comprehension and management, while inducing more positive feelings towards privacy notices. In an online experiment ($N = 620$), we examine factors active during privacy interactions: curiosity, privacy concerns, trust, and time. We study how, together with framing and control incorporated in visual designs of notices, these factors influence privacy comprehension, intention to disclose, and affect (negative-positive valence). Our results show that, depending on an individual's level of curiosity, control can influence privacy comprehension, disclosure, and valence. We demonstrate the moderating ability of valence on privacy concerns, indirectly affecting disclosures. We elaborate on the results, highlighting how privacy notices designed to activate curiosity and provide control, could enhance usability and strengthen privacy-conscious behaviors. We argue that future work should study affect to further the knowledge of its role in cognitive processing resulting from privacy interactions.

1 Introduction

Privacy issues are on the rise since people's daily activities have become increasingly reliant on persistently internet-connected applications. Such accelerating technological dependency may increase personal information disclosure and data collection; furthermore, it can put people's privacy at risks resulting in harms to the individuals [57]. These privacy breaches have been often reported in the media (e.g., [20,28]), and people express concerns about their online information, worrying that they have no control over their data [15].

Policymakers aim to reduce privacy risks by enacting data protection regulations, e.g., the EU General Data Protection Regulation (GDPR) [14], and the California Consumer Privacy Act (CCPA) [6]. Regardless of legal requirements, there has been little change in the visual display of privacy notices that are used to communicate data use practices.

At an early stage of interaction—during the application sign-up process—users have to make one of the first decisions about their online privacy, seldom provided with a choice to restrict their disclosures. Moreover, privacy is a complex and context-dependent notion [46], and people may disregard it.

Without sufficient privacy comprehension and control around data collection and processing practices given to the users during the application sign-up process, the decisions around information disclosure may not be informed. Lack of comprehension and control may lead to less rational decisions, and to behaviors which contradict the privacy beliefs of individuals. Research from psychology assigns such behaviors to mental shortcuts and heuristics, which form part of the cognitive processes around decision-making, often referred to as System 1 or Type 1 processing [16,31].

The research presented in this paper focuses on the visual display of privacy notices to investigate factors that can encourage users to make more informed privacy-related decisions, which might be closely aligned with users' beliefs. To do this, we examine the role of framing and control within the design of privacy notices. We select framing and control as they have been previously shown to influence privacy decision-making [1,4,21].

Exploring the role of framing and control, we also draw on prior work [12], to understand how affective state (valence), as well as stable factors, such as curiosity, privacy concerns, and trust influence privacy interactions. We inquire into how

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these factors influence privacy comprehension and intention to disclose information.

The contributions of the presented experiment are two-fold. First, our findings demonstrate that providing users with control can lead to more privacy-aware information disclosure. However, sole control might be insufficient. We found that individual characteristic — curiosity — influences the relationship between control and information disclosure. We also demonstrated that providing users with control may have an effect on their affective state, resulting in increased valence. Therefore, we propose to incorporate methods enhancing control and curiosity in the design of privacy notices. Such designs have the potential to improve privacy and data disclosure management during the application sign-up process. Further, the increased levels of valence suggest that providing users with control may lead to greater satisfaction, therefore impacting usability.

Second, our research contributes to the body of knowledge on privacy decision-making. We demonstrate that valence might moderate the relationship between trust and privacy concerns and, as a result, indirectly affects information disclosure. Such knowledge can be used in future experimental designs and studies modelling privacy decisions.

This article structure is as follows. First, we present a brief overview of the theoretical background and past studies related to the current research, and introduce the research questions. Next, we provide a detailed overview of the methods applied in this study. Then, we present the findings and discuss them, considering possible limitations. Last, we summarize the current research with a short conclusion.

2 Background

One of the frameworks explaining the relationships between different factors influencing privacy-related decisions is the APCO model (Antecedents→Privacy Concerns→Outcomes) [12]. We utilize this framework as it is comprehensive, and draws upon previous multidisciplinary research on privacy; the proposed model conceptualizes factors that influence outcomes of privacy decisions. Among the elements incorporated in the APCO model are antecedents of privacy concerns, such as individual characteristics; next, in the centre of the framework is the relationship between trust and privacy concerns; the central part of the model relates directly to behavioral outcomes (e.g., disclosure). The recent revision of the APCO model broadened its scope, and incorporated the level of effort that may be influenced by mental shortcuts and heuristics (e.g., affect). The level of effort relates to dual-process theories, wherein cognition contains two types of processing [16]. Type 1 is low-effort, fast, automatic, and relies on pre-existing mental models and experiences. Type 2 requires high levels of cognitive effort, is less automatic and therefore, a slower form of cognitive processing.

The current research investigates the relationships between the factors mentioned above, which relate to the low-effort, Type 1 cognitive processing. We examine them in the context of two outcome variables: privacy comprehension and intention to disclose. Further, we study the effect that external factors—framing and control—might have on outcome variables.

2.1 APCO factors

In the APCO model, information disclosure is one of the behavioral outcomes of privacy decision-making. As demonstrated in the meta-review by Gerber et al. [19] privacy concerns and trust can be predictors of intention to disclose. The APCO framework also proposes that affect might have a moderating role in the relationship between attitudes and behavior, and that individual characteristics might have an indirect effect on behavioral outcomes.

2.1.1 Privacy Concerns

Privacy concerns are considered an attitudinal factor influencing decision-making, and they were investigated in many studies (e.g., [12, 56]). Some of the studies focusing on privacy concerns addressed the *privacy paradox*, meaning the phenomenon when people may express high levels of privacy concerns whilst also tending to over-disclose their personal information [5,48]. However, the findings of the *privacy paradox* research are inconclusive. In one study privacy-concerned people were found to disclose less [13], whilst in another study, this finding existed only under certain conditions, e.g., when perceived damage and enjoyment might have altered the relationship between concerns and disclosure [9]. On the other hand, Taddicken [60], in the context of the social web, found privacy concerns having little to no effect on self-disclosure.

2.1.2 Trust

Past research has shown that people use trust beliefs in the decision-making process around information disclosure [36]. Trust has primarily been found influential when the decision is made under uncertainty, as is frequently the case when people make decisions around online privacy [50]. Trust may also influence "rationally" calculated privacy decisions, e.g., users involve their trust beliefs in the context of sensitive information disclosure [9]. Visual cues might alter trust, e.g., in their study, Zhang et al. [66] showed that cues displaying "instant gratification" (financial reward for registration) decreased trust towards a website. On the other hand, visual cues granting control over the information, combined with salient information about how data might be used for advertisement, were found to increase trust towards the application provider [64]. Consequently, such cues seemed to positively impact the willingness to install applications, which could result in increased information disclosure.

2.1.3 Affective state

Decisions around privacy have also been investigated through the lens of biases and heuristics that may take over the rational, in an economic sense, decision-making. One of the approaches explaining the "irrational" decisions is the affect heuristic related to information processing. There is not much of a consensus about the definition of affect, and the current work follows the description from Lerner: "the superordinate umbrella of constructs that involves emotion, mood, and emotion-related traits" [38, p. 801]. Further, we recognize the circumplex components of affect: valence (positive-negative) and arousal (high-low) [53].

According to the affect heuristic, people add either positive or negative value to their decision outcome [18]. The affect-as-information hypothesis postulates that emotions are felt, and this feeling has a significant impact on cognitive processing, providing conscious information from unconscious appraisal situations [8]. These feelings can guide immediate actions.

Similarly, the feelings-as-information theory proposes that positive affect indicates if a given situation is safe [54]. Negative affect signifies that a situation is unsafe, and more cognitive processing is needed. Therefore, positive affect may serve as an incentive to rely on internal thoughts and inclinations, whereas negative affect should direct attention to new, external information. The affect may be elicited by an external stimulus, such as the way information is presented or semantic context, in which the situation takes place [54].

In the context of privacy, affect has been shown to shape risk perceptions [36]. It has a lasting consequence on privacy beliefs, e.g., in an e-commerce environment [39]. Further, negative valence may increase privacy attitude and decrease sharing, while positive valence may increase sharing attitude and decrease privacy attitude [10]. In the current work, we want to further investigate the affect by asking the following research questions:

RQ1 Does the visual design of privacy notices influence affective state?

RQ2 What is the role of the affective state (if any) in the relationship between attitudinal factors and intention to disclose?

2.1.4 Individual characteristics: curiosity

In psychology and behavioral research, curiosity is regarded as one of the stable personality characteristics that drive how people perceive the world, and how they make judgements and decisions [41]. To the best of our knowledge, curiosity has not been considered in privacy research. Curiosity is closely related to learning and knowledge acquisition. Information-gap-theory proposes that curiosity is "arising when attention becomes focused on a gap in one's knowledge" [41, p. 87]. In consequence, it makes an individual curious and motivates them to seek more information. Hence, curiosity may play the role of a marker, the reference point that encourages an individual to obtain more information. Curiosity might be stimulated by external factors and reduce uncertainty about current circumstances [22, 41].

Considering the lack of research about the interplay of curiosity and privacy interactions, we raise the following research question:

RQ3 Does curiosity influence privacy comprehension?

2.2 External factors

Past work investigated privacy comprehension in many contexts, e.g., mobile permission warnings, data visualizations, end-user licence agreements [17, 34, 63]. The results showed that visual representation might impact comprehension. For instance, supplementary information may lead to a higher understanding of data collection practices [13]. Further, the visual cues with salient privacy information can not only improve understanding and increase privacy awareness, but also enhance management of privacy permissions and influence information disclosure [35].

2.2.1 Framing

One of the approaches applied to investigate privacy interactions is framing, meaning that the frame of a decision is designed in a way that constrains how the problem is presented to the decision-maker [44]. Such framing is expected to influence the decision outcome. The framing was used to improve risk communication, and help with pro-privacy decisions (e.g., choice of application, protective attitudes and behaviors) [1, 52]. Furthermore, positive framing successfully nudged users towards less privacy-invasive actions [7]. Emotion eliciting images were shown to influence decisions: the more affective the images, the more weight was placed on impression formation and decision-making [55].

2.2.2 Elements of visual design

Studies demonstrated that visual stimuli might influence memory, when they incorporate animations, anthropomorphic designs, clear layouts, such as division into columns [58, 61]. In the context of privacy, research revealed that the end-user agreements presented in abbreviated style, divided into short sections, elicited positive attitudes, increasing comprehension and time of exposure [63].

Past work suggests that text insufficiently communicates privacy information, and other approaches are required to enhance usability [2]. Nevertheless, visual design needs to be carefully crafted to avoid the effects of cluttered or over-symbolic representations. Anthropomorphic designs were shown to increase personal information disclosure [3, 45].

Recently, comic strips were found to enhance users' attention [59]. Comics may trigger emotions, enabling a greater understanding of the displayed issues [47].

2.2.3 Control over information disclosure

Prior research suggests that people want to have control over their personal information [4,35]. Therefore, some researchers provided participants with control and investigated whether it influenced disclosure. The results revealed that control may not necessarily lead to a decrease in information disclosure [4]. People appeared to alter their willingness to disclose in response to non-normative factors (control over publishing their data), but fail to change their behavior in response to the normative factors (e.g., personal identification). As mentioned above, control embedded in visual design, supported by salient information may result in a decrease in disclosing behavior, depending on the context [64].

Considering the effects of visual design on privacy comprehension and information disclosure, in the current work, we want to investigate such a relationship further. Mainly, we aim to examine the role of visual design that incorporates framing and control, in the context of interaction with privacy notices. Therefore, we propose the following research questions:

RQ4 Does visual design of privacy notices (framing and control) affect comprehension?

RQ5 Does visual design of privacy notices (framing and control) affect intention to disclose information?

3 Method

To answer the research questions, we designed an online experiment. In the experiment, we wanted to elicit affective states through framing and control applied in the visual design of privacy notices. The experiment contained four major phases: *entry questionnaires* (measuring curiosity and affect), *interactive task* (sign-up for an online well-being application), *measurement of outcome variables* (second measurement of affect; intention to disclose and privacy comprehension), and *exit questionnaires* (trust, privacy concerns and demographics), as presented in Figure 1. We built the experiment on the results of two exploratory studies.

3.1 Exploratory studies

The first exploratory study aimed to examine why users agree or disagree with privacy notices, and to identify whether the privacy stimuli elicit changes in affective states [anonymized for review]. The stimuli included in the study were either positively, or negatively framed with anthropomorphic or human-like illustrations. The qualitative exploration of data gathered from 88 participants, determined that people felt forced to agree with notices, as they had no other choice and lacked control. Following these results, we re-designed the stimuli, and in the main study, we applied control over information disclosure directly into the design of privacy notices.

Table 1: Means and standard deviations for positive and negative framing from the first pilot study (sorted by means, descending).

Illustration, and framing type	M	SD
Anthropomorphic, positive	2.69	0.85
Human, positive	2.52	0.79
Human, negative	2.35	0.69
Anthropomorphic, negative	2.28	0.77

Further, based on the findings from the first exploratory study, we concluded that the stimuli had altered affect. However, there were potential differences associated with the illustration type. To clarify this, we ran another study.

The second exploratory study gathered responses from 36 participants. Each participant was shown 16 images: eight positively and eight negatively framed. Framing groups contained four anthropomorphic and four human-like illustrations, each. The images were arranged in a randomized sequence, and participants were asked to state what feelings they associated with each picture. We assessed feelings through an instrument similar to the 2D EmojiGrid [62], scoring from 1 (negative) to 5 (positive). For the main study, we selected the positive and negative anthropomorphic representations, because they had the highest and lowest means, respectively (Table 1).

3.2 Main study

In the main study, we applied a 2x2 between-group design. The between-group variables were framing and control. Further, we measured the constructs presented in Figure 1.

3.2.1 Variables

In the final analysis, framing (positive vs negative), and control (present vs absent) were used as independent variables. Additionally, the curiosity was used as in independent but not manipulated variable, with two levels: low and high. Outcome variables were post-stimulus measurements of affect, intention to disclose, and privacy comprehension.

To reduce an error, and control for the influence of their predictive abilities, we included the following covariates: privacy concerns, trust, approximate time spent on the policy page, and pre-stimulus affective state.

3.2.2 Ethical review

The experimental design underwent an ethical review from [hidden for review]. The review board determined that this

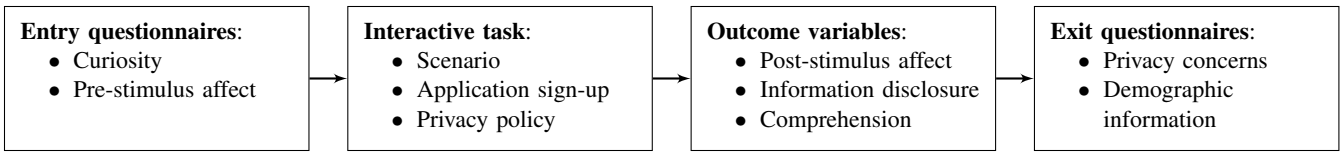

Figure 1: The four stages of the study.

work would not expose the participant to any potential risks. To comply with the legal requirements, the researchers made an effort to minimize data collection and reduce the probability of identifying an individual. No personal information was requested from the participants. However, where participants identified themselves (e.g., sent an email), their data was anonymized after the data collection had been completed.

3.2.3 Study order

Before the start of the experiment, each participant was presented with an informed consent form containing the details of the study, and explaining data handling practices. After the acknowledgement of the consent, participants were redirected to the experiment.

Entry questionnaires. The first part of the entry questionnaire included instrument measuring curiosity. We applied a previously validated scale to measure the trait, obtained from Kashdan et al. [32]. The scale aims to measure two dimensions of curiosity: *stretching* and *embracing*. The first dimension means having the motivation to seek new experiences and knowledge. The second dimension means general intention to embrace new, unexpected and unpredictable aspects of everyday life. The construct was measured on five points Likert scale, and the participants were asked to state to what extent presented sentences reflected the way they would behave or feel (1 - slightly, 5 - extremely).

Next, to ensure that the stimuli elicited expected affective state, we measured affect before the presentation of visual stimuli. We took a second measurement of affective state after the respondents completed an interactive task.

To measure affect, we utilized a previously validated instrument, "Affective Self Report" (ASR), aiming to estimate a level of valence and arousal [29]. We chose this instrument, because it is efficient to use in terms of time, and past research shows it performing equally well when compared to physiological measures (e.g., thermography and electroencephalography) [29]. ASR consists of 10 semantic-differential items (five for valence and five for arousal). The items include extreme opposites, for example, *Unpleasant – Pleasant*, anchored from 1 to 7. We asked participants to use the scale to state how they were feeling at that point in the study.

Interactive task. Next, participants were asked to complete an interactive task. First, they read a scenario which asked them to imagine they were signing-up to use a new well-being application (improving mental and physical health) that contained social features. Next, participants were asked to complete a sign-up form. This step intended to enhance the experiment's ecological validity as it required participants to provide their name, username and create a password. However, participants were informed in the task instructions that none of their personal information would be collected.

After completing the sign-up form, participants were presented with a notification prompting them to review the application's privacy policy. At this point, each participant was randomly assigned to one of the four privacy notices, each using a different design.

The designs were as follow: control with positive framing; control with negative framing; no control with positive framing; no control with negative framing (Figure 2). The participants provided with control were able to adjust some of the privacy settings, e.g., decide whether they wanted to share data, connect data with social networks. We applied toggle like switches, which, for the study were per default in the "Enable" mode. Therefore, without changes, participants were automatically opting-in. The anthropomorphic images accompanied with text were implemented in all designs to frame the information, either positively or negatively. The Gunning's Fog-Index of readability for the text of privacy policy was 10.75 for no control, and 10.88 for control groups, indicating that it should be readable by high school sophomores [65].

Measurement of outcome variables. During this stage of the study, we asked participants whether their affective state had changed. Particularly, whether they felt more or less positive or negative, using the same instrument as in the *Entry questionnaires* phase.

Next, we wanted to learn how much of the information participants would be willing to disclose to the fictional service provider. To do this, we built an instrument based on the scale created by Joinson et al. [30]. We designed a questionnaire containing 14 items, and asked participants whether they would share or not different types of personal information.

For measuring the participants' comprehension, we created a quiz-like instrument with statements describing information included in the privacy policy. They were presented with ten sentences and asked to declare whether the statement was "True", "False", or "I don't remember / I don't know."

Exit questionnaires. In this phase of the experiment, we included questionnaires measuring privacy-related beliefs and demographics. To measure psychometric constructs, we used

Figure 2: Examples of privacy policy designs. Upper left: control negative; upper right: no control, negative; lower left: control, positive; lower right: no control, positive.

validated scales. Specifically, we obtained privacy concerns and trust beliefs scales from Malhotra et al. [42].

Last, we asked participants about their demographic characteristics: age, gender, nationality, and education.

3.3 Participants

We used an online crowd-sourcing platform, Prolific, to gather participants. The platform enabled us to compensate participants for their work (£9.82/hr). We wanted to gather participants from English speaking countries, and Prolific's participants pool contains mostly respondents from the UK.

To participate in the study, each respondent had to read and agree with the informed consent. Only participants 18 years old or more were allowed to participate in the study.

In total, we received 650 responses. After cleaning the data and removing univariate and multivariate outliers (Mahalanobis distance), the final data-set included 620 cases. The participants were predominantly females (59%); most of the participants were from the UK (74.2%). The respondents were mostly educated (36.1% with Bachelor's degree) and predominantly young (39.5% between 25–34 years old). The detailed demographic characteristics are presented in Table 2.

4 Results

In this section, we first discuss the validity and reliability of instruments applied in the current work. Next, we present the main results concerning the research questions.

4.1 Instruments used in the study

Validity and reliability are essential to ensure that the instruments applied in the experiment measure desired constructs. When possible, we utilized validated instruments acquired from past research. We checked reliability with statistical tests (factor analysis and scales' reliability estimated with Cronbach's α measurements of internal consistency).

4.1.1 Outcome variables

Intention to disclose. We asked participants to what extent they would be willing to disclose different types of information. In total, there were 14 types of information, e.g., name, health-related data, or personal economic situation. To score, participants could choose one of two options: "I would disclose" (1) or "I would prefer not to say" (0). Internal consistency of the scale was acceptable ($\alpha = 0.90$). To compute the variable, we summed the scores.

Table 2: Detailed demographic characteristics of the sample.

Demographic		N	%
Gender	Female	366	59
	Male	243	39.3
	Other/Self identify	4	0.6
	Prefer not to say	7	1.1
Age	18-24	103	16.6
	25-34	245	39.5
	35-44	135	21.8
	45-54	74	11.9
	55+	63	10.2
Nationality	UK	460	74.2
	USA	139	22.4
	Ireland	11	1.8
	Other	10	1.6
Education	No school/School, no diploma	21	3.4
	High school	101	16.3
	College credit, no degree	92	14.8
	Professional/associate degree	76	12.3
	Bachelor's degree	224	36.1
	Master's degree	96	15.5
	Doctorate degree	10	1.6

Privacy comprehension. Privacy comprehension was measured as the awareness of information that was presented in the privacy notice. The scale consisted of 12 statements associated with the information included in the privacy policy, emphasizing information highlighted by framing. Participants were asked to state whether each statement was "True", "False", or select "I do not remember / I do not know". Correct answers scored 1, while incorrect, and cases where participants selected the latter option, scored 0. The main purpose of providing participants with the latter option was to reduce the potential effects of guessing. Because the instrument aimed to measure knowledge, not a latent construct, we could not check Cronbach's reliability. The variable was computed as the sum of correct answers.

4.1.2 APCO factors

Privacy concerns and trust. Both traits were assessed with instruments obtained from Malhotra et al. [42]. The trust beliefs scale contained five items that aimed to measure general attitude towards online companies. Similarly, the scale measuring privacy concerns measured the general approach to online privacy. The two instruments contained seven-point scoring answers, anchored from "Strongly disagree" to "Strongly agree". Both scales underwent the same procedures during which we ran principal component analysis (PCA), and checked Cronbach's reliability. Privacy concerns did not load strongly into one factor, and after revision, two items were deleted. Both scales had good internal consistency, privacy concerns $\alpha = 0.82$, and trust $\alpha = 0.91$.

Affective state. We measured affective state with ASR aiming to identify two dimensions: valence and arousal [29]. To confirm whether the instrument measurements were correct, we first ran PCA. In the case of both pre-, and post-stimulus data, the PCA did not load correctly. The valence loaded strongly into one factor, and its reliability scores were acceptable. Both pre-, and post-stimulus scores of internal consistency were acceptable, $\alpha = 0.91$. We created a pre-, and post-stimulus valence variables by computing the mean score for each scale. These new variables were employed in further analysis. The inappropriate loadings of the items measuring arousal undermined the scale's validity and reliability. Hence, we excluded the arousal scale from further analysis.

Personality characteristic: curiosity. To measure curiosity, we applied an instrument comprising of ten items from Kashdan et al. [32]. The original scale intended to measure two dimensions of curiosity: *stretching* and *embracing*. We ran PCA to confirm whether the items load correctly. Unfortunately, they did not. Instead, the *stretching* facet loaded strongly to one dimension, while *embracing* loaded to both. Both scales had good internal consistency (*stretching* $\alpha = 0.81$; *embracing* $\alpha = 0.84$). Because of unreliable loadings, in further analysis, we used only the curiosity stretching dimension. We used means to compute the curiosity variable. To apply it as an independent variable, based on the median value, we divided curiosity into a two-level categorical variable (low vs high).

4.2 Main results

To answer the research questions, we ran a series of statistical tests. First, to establish whether the variables included in the experiment are related, we ran Pearson's correlation analysis. An additional variable was considered in the correlation analysis: time spent on the page displaying privacy notice. The test results revealed mostly small to moderate correlations between some of the variables. Table 3 presents the correlations' details.

Next, to identify whether there was a change in valence, we compared pre-, and post-stimulus scores. We used pairwise t-test to investigate changes. There was a significant difference in the scores for pre-stimulus ($M = 3.63$, $SD = 0.85$) and post-stimulus ($M = 2.71$, $SD = 0.65$) valence; $t(619) = 22.62$, $p < 0.001$. Therefore, we postulated that either framing or control had influenced shifts in valence.

To further investigate the research questions, we applied different statistical methods: a univariate and multivariate analyses of covariance. We checked tests' assumptions, such as linearity, absence of multicollinearity, distributions, outliers, homoscedasticity.

In further analysis, we compared between- and within-group effects based on the independent variables. The group sizes differed as presented in Table 4.

Table 3: Correlations between variables: curiosity stretch (CUR), valence pre-stimuls (VAL_PR), valence post-stimulus (VAL_PO), privacy comprehension (COMP), intention to disclose (DIS), privacy concerns (PCS), trust and time spent on policy page. ** significant at the 0.01 level; * significant at 0.05 level (2-tailed).

	CUR	VAL_PR	VAL_PO	COMP	DIS	PCS	TRUST	TIME
CUR	1	0.23**	0.04	0.09*	0.08*	0.08*	0.00	-0.00
VAL_PR		1	0.16**	0.10*	0.07	0.11**	0.13**	0.10**
VAL_PO			1	-0.14**	0.24**	-0.06	0.31**	-0.17**
COMP				1	-0.08*	-0.05	-0.03	0.50**
DISC					1	-0.25**	0.30**	-0.14**
PCS						1	-0.19**	0.19
TRUST							1	-0.11**

Table 4: Number of participants per independent variables.

	Presence of control		Framing		Curiosity		Control over information	
	Present	Absent	Positive	Negative	Low	High	Adjusted	Not adjusted
Frequency	318	302	310	310	317	303	190	128
Percent	51.3	48.7	50	50	51.1	49.9	59.7	40.3
Total	620		620		620		318	

4.2.1 Effects on comprehension

Dattalo [11] proposed that to decide whether or not to use multiple dependent variables in one model, one can examine correlations between such variables. Low correlations ($r < 0.20$) imply that variables should be investigated separately, while moderate correlations (r between 0.20 and 0.50) imply that variables should be analyzed together. As seen in Table 3, correlations between comprehension and disclosure, as well as between comprehension and post-stimulus valence are small. Hence, to study comprehension, we used univariate analysis of covariance (**RQ3**, **RQ4**).

The Levene's test was good, $p > 0.05$. The model included three independent variables: framing, control, and curiosity; and four covariates: time spent on the policy page, post-stimulus valence, privacy concerns, and trust. We found a significant between-subject effect of curiosity on comprehension, $F(1,608) = 8.47, p = 0.004, \eta p^2 = 0.01$. The results show that comprehension was significantly higher among the participants with high curiosity ($M = 5.82, SD = 0.10$) than among the participants with low curiosity ($M = 5.37, SD = 0.10$). Further, the time spent on the page with privacy policy had a significant effect on comprehension ($p < 0.001, \eta p^2 = 0.25$).

To further investigate the effects of control on comprehension, we repeated the univariate test only on the data from the participants who were provided with control. For this purpose, we have created a new categorical variable, splitting participants into two groups: the participants that adjusted settings, and the participants that did not adjust them. As a result, the total sample size decreased to 318 participants.

We ran the test with the same parameters. There were significant effects of curiosity, $F(1,306) = 7.87, p = 0.005, \eta p^2 = 0.02$, and of control, $F(1,306) = 11.11, p = 0.001, \eta p^2 = 0.03$, on comprehension. Again, the participants scoring high on curiosity scored significantly higher in comprehension ($M = 5.79, SD = 0.15$) than those with lower curiosity ($M = 5.21, SD = 0.14$). Similarly, comprehension was significantly higher among the respondents that changed their settings ($M = 5.90, SD = 0.14$) than among the participants who did not use controls ($M = 5.10, SD = 0.17$). Additionally, two covariates had a significant effect on comprehension: time spent on the policy page ($p < 0.001, \eta p^2 = 0.19$) and privacy concerns ($p < 0.05, \eta p^2 = 0.01$).

4.2.2 Effects on affect and intention to disclose

To investigate affect (valence) and intention to disclose (**RQ1**, **RQ5**), we ran a multivariate analysis of covariance. The independent variables were framing, control, and curiosity; covariates were pre-stimulus valence, time spent on the policy page, privacy concerns, and trust. The Box's test was good, significant, but at the level $p > 0.01$, which is acceptable for larger samples. The Levene's test for both outcome variables was good, $p > 0.05$.

There was a significant main effect of control on combined dependent variables, $F(2,607) = 2.89, p = 0.05, \eta p^2 = 0.009$, Wilks' $\lambda = 0.99$. The between-subject test confirmed that post-stimulus valence significantly differed among the control groups, $F(1,608) = 5.78, p = 0.01, \eta p^2 = 0.009$. Valence scores were significantly higher for the participants provided with control ($M = 2.78, SD = 0.03$) than for those who did not have a control ($M = 2.65, SD = 0.03$). Further, the model resulted in interaction effect between control and curiosity on the combined dependent variables, $F(2,607) =$

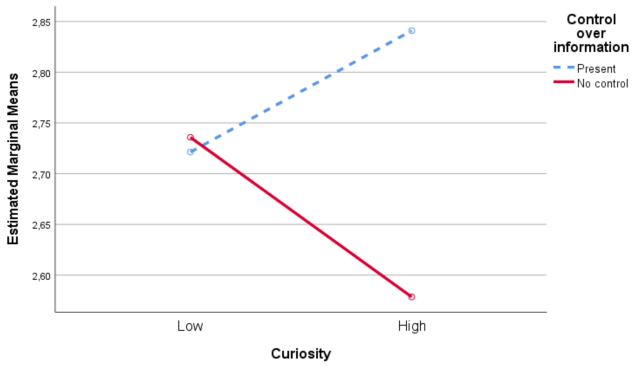

Figure 3: Interaction effect on post-stimulus valence. Covariates appearing in the model are evaluated at the following values: pre-stimulus valence= 3.63, time on policy page= 84.55, privacy concerns= 4.78, trust= 3.10.

$3.60, p = 0.02, \eta p^2 = 0.01$, Wilks' $\lambda = 0.98$. The univariate analysis identified the interaction effect for post-stimulus valence, $F(1,608) = 7.19, p = 0.008, \eta p^2 = 0.01$) (Figure 3). The mean scores for valence were higher among the participants provided with control who scored higher on curiosity ($M = 2.84$) than among the participants who scored lower on curiosity ($M = 2.72$). However, the participants with high curiosity not given control scored lower in valence ($M = 2.73$) than those with lower curiosity ($M = 2.57$).

Additionally, the covariates had significant effects in the model ($p < 0.001$). Particularly, time spent on the policy page and trust affected outcome variables; pre-stimulus valence influenced post-stimulus valence; privacy concerns significantly affected intention to disclose.

Consistent with the tests on comprehension, we re-ran the analysis on the smaller sample, considering only participants provided with control. Both Box's and Levene's tests were insignificant, $p > 0.05$.

The multivariate test results indicated significant effect of curiosity, $F(2,305) = 2.99, p = 0.05, \eta p^2 = 0.01$, Wilks' $\lambda = 0.98$. However, the univariate tests results were insignificant. Further, the multivariate test revealed the effect of adjusted settings, $F(2,305) = 7.55, p = 0.001, \eta p^2 = 0.04$, Wilks' $\lambda = 0.95$. The univariate test confirmed that the groups differed in intention to disclose, $F(1,306) = 12.68, p < 0.001, \eta p^2 = 0.04$, which was significantly higher among the participants who did not adjust settings ($M = 9.66, SD = 0.37$), than among those who adjusted them ($M = 7.84, SD = 0.29$).

4.2.3 Effects of concerns, trust, and valence

The above statistical models revealed that the stable factors influenced intention to disclose. Following the conceptual framework proposed by Dinev et al. [12], and the current results, we sought to investigate further the relationship between these factors and behavioral outcomes (**RQ2**).

Table 5: Results of mediation analysis: trust→privacy concerns→intention to disclose.

Predictor	Coeff.	*SE*	*t*	*p*
	Privacy concerns			
TRUST	-0.17	0.03	-5.03	<0.001
	$R^2 = 0.04$			
	$F(1,618) = 25.36, p < 0.001$			
	Intention to disclose			
TRUST	0.85	0.12	7.03	<0.001
PRIVACY CONCERNS	-0.70	0.13	-5.20	<0.001
	$R^2 = 0.09$			
	$F(1,617) = 47.42, p < 0.001$			
	Intention to disclose (total effect)			
TRUST	0.977	0.12	8.06	<0.001
	$R^2 = 0.09$			
	$F(1,618) = 65.05, p < 0.001$			

First, we ran mediation analysis to identify whether privacy concerns mediated the influence of trust on the intention to disclose. We applied mediation analysis, because it enables identification by what means X affects Y. There are multiple techniques enabling examination of such relationships [51]. Modern methodologists recommend a product coefficient or bootstrapping as most appropriate [25].

The results of simple mediation, conducted using ordinary least squares path analysis, demonstrated that trust indirectly influenced the intention to disclose through its effect on privacy concerns. The analysis showed that trust was a significant predictor of privacy concerns, $b = -0.17, t(618) = -5.03, p < 0.001$. Privacy concerns were significantly predicting intention to disclose, $b = -0.70, t(617) = -5.12, p < 0.001$. There was a significant effect of trust predicting disclosure, mediated by privacy concerns, $b = 0.97, t(618) = 8.06, p < 0.001$. Lastly, the direct effect of trust on intention to disclose was also significant, $b = 0.85, t(618) = 7.03, p < 0.001$.

The analysis of direct and indirect effects showed that the indirect effect $= 0.12, SE = 0.03$ was significant with bootstrapped 95% CI $[0.06, 0.20]$. Thus, the presence of mediation was confirmed.

After establishing the mediation effect, we wanted to examine the role of valence. According to Hayes, to gain a deeper understanding of an effect, it is crucial to learn the mechanism by which it operates [27]. One must identify whether the effect exists and define its boundaries, which can be achieved through a conditional process analysis – analysis of whether an indirect effect (mediation) is restrained by another variable (moderation).

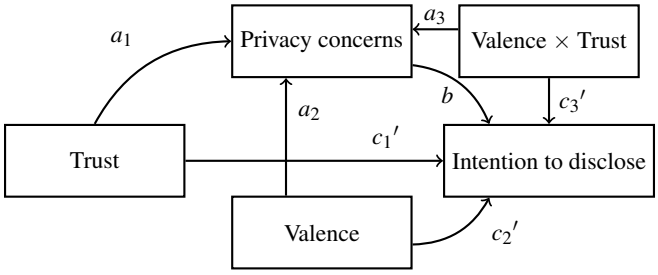

Figure 4: Paths in the model of moderated mediation.

We used the index of moderated mediation to evaluate whether moderated mediation was present. When bootstrapped confidence intervals of the index of moderated mediation do not include zero, it is assumed that the relationship between the indirect effect and the moderator is not zero. Consequently, this indicates the presence of moderated mediation [26]. Additionally, an index not including zero indicates that "any two indirect effects conditioned on different values of [moderator] are statistically different from each other" [26, p. 14]. Hence, there is no need to probe the moderator via further statistical tests.

We examined whether a different level of valence influenced the indirect relationship between trust and intention to disclose. We looked for an interaction effect, either at the first or the second stage of the path model. Figure 4 shows paths in the model, and Table 6 presents the model's results.

There was an interaction effect (Figure 5) at the first stage of the model (a_2 in Figure 4). The relationship between trust and privacy concerns was moderated by valence. The analysis shows that among the participants with low trust and low valence, scores for privacy concerns were higher than among the participants with low trust and high valence. However, this effect is reversed among the participants with higher trust levels. Among those, the participants with low valence scored lower in privacy concerns than those with a high level of valence.

The bootstrapped index of moderated mediation was significant, confirming that there is an indirect effect of trust on the intention to disclose when controlling for privacy concerns, moderated by valence. The analysis of the conditional effect of focal predictor at values of the moderator showed that at scores of valence smaller than 2.71, trust and privacy concerns were significantly related, $b = -0.19, t(3,616) = -5.26, p < 0.001$. With the decrease of valence, the relationship between trust and concerns becomes more negative, with the lowest score on valence 2.03, $b = -0.30, t(3,616) = -0.6, p < 0.001$.

5 Discussion

In the current study, we investigated some of the factors active during privacy interactions. The research focused on an early stage interaction – the application sign-up process. Overall, our findings have two-fold contributions, summarized as follows.

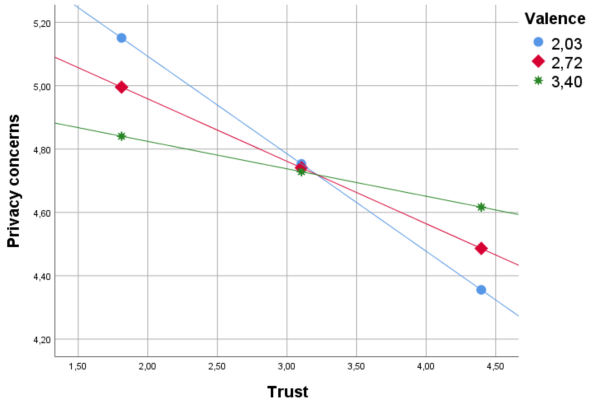

Figure 5: Interaction effect: moderated mediation.

5.1 Insights for privacy designers

Affect. We investigated curiosity, a personality characteristic that is closely related to affective states, and might be considered as a trait that is motivated by the desire for positive affect [40, 41].

Our findings revealed that curiosity, together with control, leads to an increase in valence (**RQ1**). People feel more positive (e.g., happy, pleased, satisfied) when provided with control while having high levels of curiosity. Following this finding, we believe that control increases a general satisfaction with the design. The established relationship between positive feelings and control strengthens the exploratory findings from [anonymized for the review], wherein similar study participants expressed a desire for control and choice at an early stage of interaction—when consenting to the privacy policy.

Further, increased scores in valence may influence satisfaction, consequently affecting usability. As demonstrated by Habib et al., current designs of privacy choices and controls frequently lack usability [23, 24], and are provided in an inconsistent and challenging to comprehend manner. Such designs often require users to go through a lengthy process (e.g., few clicks, links redirecting users to different pages) before reaching the UI containing privacy controls. Perhaps, if provided with privacy choices at the early stage of interaction, people would feel more confident about not only using privacy controls, but also about using a particular application. From the start, users would be in a position to manage their personal information, instead of being "tricked" into exchanging their data in return for a service. Nouwens et al. [49] investigated similar topic. They identified that when the button to "reject all" of the data processing was removed from the first page of the privacy notice people seemed to consent without seeking more control hidden below the layers of the

Table 6: Moderated mediation: trust→privacy concerns→intention to disclose; moderator: valence.

		Consequent						
		M (Privacy Concerns)				Y (Intention to disclose)		
Antecedent		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (TRUST)	a_1	-0.63	0.13	<0.001	c'_1	0.80	0.44	0.07
M (Privacy concerns)					b	-0.70	0.13	<0.001
W (Valence)	a_2	-0.52	0.15	<0.001	c'_2	1.05	0.51	0.04
X *x* W	a_3	0.16	0.04	<0.001	c'_3	-0.03	0.14	0.81
Constant	i_M	6.76	0.42	<0.001	i_Y	6.77	1.68	<0.001
		$R^2 = 0.06$				$R^2 = 0.15$		
		$F(3,616) = 13.17, p < 0.001$				$F(4,615) = 28.41, p < 0.001$		

consent. We believe that providing users with choices carries the potential to increase their awareness of where to locate the privacy controls, consequently improving the efficiency of the interaction.

Curiosity. We determined that curiosity positively affects comprehension (**RQ3**), although we did not identify the effects of positive and negative framing or control on comprehension (**RQ4**). The effects of curiosity may sound self-evident for some. Nevertheless, to the best of our knowledge, curiosity has not been taken into consideration when designing privacy policies. Curiosity, being a robust motivational trait that drives human cognitive development [33], seems to be rarely reflected in UI design, with a certain exception of game interfaces.

As postulated by information-gap theory, people seek knowledge to fill the gap in their current understanding [41]. In the context of privacy and the escalating privacy concerns among internet users, while users may possess a basic understanding of online privacy they may want to learn more. The visual design of privacy notices could promote such "willingness to know more" by purposefully designing interfaces that stimulate users' curiosity during the interaction. For instance, designers could implement methods acquired from the game design that encourage users' participation and engagement, such as intuitive and immediate interactions, e.g., when users are presented with a task prompting them to modify settings, instead of idly reading the text of privacy notice. Moreover, privacy designers could follow some of the guidelines for UIs enhancing curiosity, such as those proposed by Malone [43]. Malone postulated evoking curiosity through the *optimal level of informational complexity*, meaning, through environments that are "neither too complicated nor too simple with respect to the user's existing knowledge" [43, p. 67]. The optimal level might be achieved with the application of *novelty* and *surprise*, *randomness* and *humor* that could elicit positive experiences, increasing satisfaction. However, such methods would have to be thoroughly tested, as they may bring an inverse effect, and result in dissatisfaction or incomprehensibility.

Similarly, privacy designers could arrange privacy policies into "gradually discoverable" bits of information, which may trigger curiosity and enhance engagement. Such an approach was previously investigated in the context of crowd workers performance [37]. The progressive revelation of the information was determined to drive people towards an increased notice of the information, and towards remaining curious to unravel more information, and fill gaps in their knowledge. However, while such an approach may influence engagement and prominence of privacy, applied to real-life situations, it could result in habituation effects or be perceived as disruption of the application sign-up process. Therefore, the curiosity enhancing designs would require longitudinal studies, examining both efficacy and efficiency of "gradually discoverable" designs of notices.

Control. Regarding controls embedded in the design, our results indicate that among people provided with an option to adjust their settings, those who are curious and modify their settings, disclose less information (**RQ5**). This finding might be interpreted as a demand for new solutions around the design of privacy notices, such as "dynamic" notices. By "dynamic notices" we mean solutions that provide users with options to adjust, according to their individual preferences, the amount or type of information that will be disclosed or shared by a service provider.

Implementing such designs might be easily achievable at the front-end, within the UI design. However, it would require severe modifications in the system design and, potentially, business models, as the user would be able to restrict information processing during the sign-up process. As a result, the service provider might not be able to grant access to the complete functionality of their applications, and must ensure that an appropriate system infrastructure is in place.

Providing users with control may also have a positive influence on service providers. Improved usability may encourage users to use a particular application, as it may seem more attractive through designs enhancing fairness and transparency around information management. Further, it may increase legal compliance, e.g., with the GDPR's requirements.

Time. Our results show that the time spent on the notice page had a significant influence on comprehension. This finding

indicates that people contributing their time to gather information are more aware of the privacy notice. We interpret this result as a signal for the application of design methods engaging users to spend more time on the notice page. Perhaps methods discussed above, such as the incremental revelation of information or interaction probing UI elements could be introduced to extend the time spent on the privacy notice page.

Concerns, trust, and valence. Our findings demonstrate that valence moderates the relationship between trust and privacy concerns. Such result could be applied to privacy UI with malicious intentions in mind. For instance, as the *dark pattern*, which, through an impact on valence, could manipulate users' attitude towards lesser concerns. Effectively, this might "trick" users and lead them to an increase in information disclosure. On the other hand, we believe that such a result could be implemented in UI to increase privacy concerns. For example, by highlighting risks and harms to privacy through interface design, which may lower valence, and result in a more negative relationship between trust and concerns, indirectly reducing information disclosure.

5.2 Insights for privacy researchers

In the current research, we intended to study factors, such as privacy concerns and trust, their influence on information disclosure, and we aimed to gain a deeper understanding of the role of affect in such context.

Concerns, trust, and valence. Our results contradict the *privacy paradox* and demonstrate a significant relationship between trust, privacy concerns, and intention to disclose. In particular, we identified that concerns mediate the relationship between trust and disclosure. More importantly, our findings show that valence is moderating such relationship (**RQ2**). According to our findings, lower trust results in greater privacy concerns; however, the affective state may alter the direction of this relationship. We showed that an increase in valence diminishes the effects of trust on concerns. This finding implies the possibility to alter privacy concerns through elicitation of emotions. Not much attention has been given the role of affect in privacy. We believe that our results call for future studies of privacy, which focus on affect elicitation in different contexts of privacy interactions to review its influence on well-established factors active during the privacy decision-making processes.

Cognitive processing. The moderating effect of valence suggests that intention to disclose might be an effect of the Type 1 processing, which utilizes mental shortcuts and straightforward solutions as core for information processing. Further, our results confirm the applicability of the affect-as-information and feeling-as-information theories into the research on privacy interactions [8, 54]. Our findings demonstrated that concerns increase with a decrease of valence. It is likely that because of the negative valence, people perceive the situation as unsafe, using affect as an indicator / marker of safety.

5.3 Limitations and future work

This work is not free of limitations. We performed an online experiment, and the findings might have been different, if we ran a field study. Further, the selection of participants may have influenced our results; we used a crowdsourcing platform and mainly participants from English speaking countries. As a result, we could not study cultural differences and their influence on privacy interactions.

The current work examined only one context of privacy interaction, a sign-up process for the well-being application. Recognizing the contextuality of privacy, the sign-up process for another type of application could result in different conclusions.

Future work should include different methods measuring self-reported constructs, particularly measures of affect. Both observational data, as well as physiological measurements (e.g., electroencephalography, fMRI), could be applied in future inquiries to more accurately assess levels of affect and privacy comprehension.

6 Conclusion

We conducted an empirical analysis of privacy interactions during the application sign-up process. To gather the necessary data, we ran an online experiment with 620 English speaking participants. Our results show that people driven by curiosity utilize control over their information. We examined how this affects their intention to disclose, privacy comprehension, and affective state (positive–negative valence). Further, we investigated the role of valence in the relationship between trust and privacy concerns. Our work indicates that the visual design of privacy notices may have a beneficial influence on personal information management. However, other factors should be taken into consideration to ensure improvement in individuals' privacy practices. We discuss our findings in the context of their applicability to the design of privacy notices as well as future research directions, postulating for change in both practical and theoretical aspects of privacy research.

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Appendix

Curiosity

Participant instructions:

Rate the statements below for how accurately they reflect the way you generally feel and behave. Do not rate what you think you should do, or wish you do, or things you no longer do. Please be as honest as possible.

1. I actively seek as much information as I can in new situations.
2. I am the type of person who really enjoys the uncertainty of everyday life.
3. I am at my best when doing something that is complex or challenging.
4. Everywhere I go, I am out looking for new things or experiences.
5. I view challenging situations as an opportunity to grow and learn.
6. I like to do things that are a little frightening.
7. I am always looking for experiences that challenge how I think about myself and the world.
8. I prefer jobs that are excitingly unpredictable.
9. I frequently seek out opportunities to challenge myself and grow as a person.

10. I am the kind of person who embraces unfamiliar people, events, and places.

Scoring:

Items 1, 3, 5, 7, and 9 reflect curiosity *stretching*. Items 2, 4, 6, 8, and 10 reflect curiosity *embracing*. Items were anchored on the scale: 1 – very slightly or not at all, 2 – a little, 3 – moderately, 4 – quite a bit, 5 – extremely.

Affective Self Report

Participant instructions:

1st measurement instructions: Thinking about yourself, to what extent do you currently feel:

2nd measurement instructions: Earlier in the study, we asked you how did you feel. Thinking back about the sign-up process, would you say that now you feel different or the same in comparison to when we previously asked you?

1. Annoyed – Pleased
2. Tired – Energetic
3. Unpleasant – Pleasant
4. Patient – Anxious
5. Irritated – Content
6. Unhappy – Happy
7. Calm – Restless
8. Disappointed – Satisfied
9. Relaxed – Tense
10. Indifferent – Curious

Scoring:

Items scored on 7 points Likert scale. The second measurement was labelled with the word *more*, e.g., More Annoyed – More Pleased.

Intention to disclose information

Participant instructions:

Thinking back about the sign-up process and considering the previously presented scenario, if you were to sign up for this application, would you be willing to share any of the following information with this application provider?

1. Your age
2. Your weight
3. Your height
4. Gender
5. Ethnicity
6. Your sexual orientation
7. Your marital status
8. Number of children
9. Chronic conditions
10. Overall number of sexual partners, since you became sexually active
11. Religious beliefs
12. Employment status
13. Political beliefs
14. Monthly income

Answers:

"I would disclose" or "I would prefer not to say."

Privacy comprehension

Participant instructions:

Thinking back about the sign-up process, could you please tell us which of the following statements you believe are true considering the privacy policy that you have been asked to read.

1. Personal information is any information about you that is collected by an online service provider.
2. Information about you collected through any forms, including sign-up form is used to personalize services.
3. The service provider will collect your health information.
4. You are contractually obliged to provide your contact information.
5. You have full control over your personal information if you sign up for forums and create a public profile on this application, and you control how this information is being shared with others.
6. There are third parties that collect data about you and this service's policy applies to the processing of your information by such third parties.
7. If you are logged in to your social media and use the application at the same time, information about your activities will be tracked and recorded by social media providers.
8. This application transfers personal data to companies located abroad. These services can freely process your personal information for their purposes.
9. The service provider is legally obliged to share your personal information, and it does not need to inform you about it.
10. The service provider can process your personal data without your consent, for any purpose that was not explained in its privacy policy.

Answers:

"True", "False", "I don't remember / I don't know."

Trust

Participant instructions:

Please read the statements below and indicate to what extent you disagree or agree with each of the statements.

1. Online companies would be trustworthy in handling the information.
2. Online companies would tell the truth and fulfil promises related to the information provided by me.
3. I trust that online companies would keep my best interests in mind when dealing with the information.
4. Online companies are in general predictable and consistent regarding the usage of the information.

5. Online companies are always honest with customers when it comes to using the information that I would provide.

Scoring:

Items scoring on 7 points Likert scale, anchored "Strongly disagree" – "Strongly agree".

Privacy concerns

Participant instructions:

Please state, to what extent do you agree with the following sentences.

1. All things considered, the Internet may cause serious privacy problems.
2. Compared to others, I am more sensitive about the way online companies handle my personal information.
3. To me, it is the most important thing to keep my privacy intact from online companies.
4. I believe other people are too much concerned with online privacy issues.
5. Compared with other subjects on my mind, personal privacy is very important.
6. I am concerned about threats to my personal privacy today.

Scoring:

Items scoring on 7 points Likert scale, anchored "Strongly disagree" – "Strongly agree."

Text of privacy policies

OUR POLICY

On this page, you can find an overview of our privacy policy. If you think the information here is insufficient, you can check the full text of Privacy Policy.

WHAT DATA WE COLLECT AND USE WHEN YOU VISIT OUR SITE

We collect Non-personal and Personal information when you visit our website. Personal Data is information that identifies you or could be used to identify you, e.g., name, address, email. Some of our services require the processing of your health-related data. We collect information that you provide directly to us when you choose to use our Services. We also collect data that you submit through responses to any forms such as sign up or profile creation forms, questionnaires, etc. We use this data to personalize our services and to optimize your experience.

WHEN WE COLLECT YOUR DATA AND WHY

We collect information, e.g., Personal Data, when you browse our website or use our service. Among the information collected are your IP address, browser type, operating system, error logs, and the like. Such aggregated information does not identify you and is used by us to analyze trends, to administer and monitor our site, its use, and to gather general information about the use of our website.

HOW WE DISCLOSE YOUR DATA

There are a few instances when we are obliged to disclose your information. E.g., to pursue our legitimate interest in applying or enforcing the terms and conditions, or to respond to any claims. We may disclose your data to protect our rights or the rights of a third party; to protect the safety of any person or to prevent any illegal activities. If legally required to do so, we will collect your prior consent before sharing your Personal Data with other companies.

HOW WE USE YOUR DATA

We use your data to send you service announcements and updates regarding our Website. You are contractually required to provide us with such Personal Data as, without it, we will not be able to send you service-related communication.

PROCESSING FOR OTHER PURPOSES

If your Personal Data are processed for purposes not mentioned in this policy, we will provide you with information on that other purposes and any additional relevant information as referred to in this Privacy Policy.

SHARING YOUR DATA

We may share some of your Personal Data with our company located in other countries, providing us with hosting services. We use third-party service providers to offer or facilitate services on our behalf and share your data with such providers to the extent necessary to perform their services on our behalf. They are prohibited from using your Personal Data or any other purposes than those described in this Privacy Policy.

SOCIAL FEATURES

We feature public forums such as message boards, bulletin boards or activities where you and other users can communicate with one another. The Public Profile feature permits you to share information about yourself (including, if you elect, Personal Data) with others. If you use Social Features, we cannot control how other users might use your data. We also cannot prevent you from receiving unwanted messages from others. You are not legally required to provide us with your Personal Data, but without it, we cannot offer you to use our Social Features.

SOCIAL PLUGINS

Our Website contains links to or features from other sites. This Policy does not cover the privacy practices of third-party websites or features. We use social networks plugins of Facebook, Twitter and YouTube. If you visit our Website while signed in to your social media account, results in the transfer of information about you to the social network. Such information can be linked with your social network account. This data transfer is triggered already when you visit our Website, irrespective whether you interact with the plugin. To prevent this, you must log out of your social network account before visiting our Website.

CONTACT

If you have any questions about our Privacy Policy or feel that we are not abiding by the terms of our posted Privacy Policy

or the applicable data protection laws, please contact our data protection officer at legal@abc.com.

Amended text of policy for groups given control

OPT-OUT FROM INFORMATION PROCESSING
We do not want to collect all of the information about you. However, the more information we have, the more accurate and personalized services we can offer. To ensure your control over the information, we offer you options to opt-out from particular data collection and processing. If you wish to limit the collection of your information, change the switches to Disabled mode.

SHARING YOUR DATA
We may share some of your Personal Data with our company located in other countries, providing us with hosting services. We use third-party service providers to offer or facilitate services on our behalf and share your data with such providers to the extent necessary to perform their services on our behalf. They are prohibited from using your Personal Data or any other purposes than those described in this Privacy Policy. If you don't want us to transfer your information to servers located abroad, you can disable this as per our Policy.

SOCIAL FEATURES
We feature public forums such as message boards, bulletin boards or activities where you and other users can communicate with one another. The Public Profile feature permits you to share information about yourself (including, if you elect, Personal Data) with others. If you use Social Features, we cannot control how other users might use your data. We also cannot prevent you from receiving unwanted messages from others. You are not legally required to provide us with your Personal Data, but without it, we cannot offer you to use our Social Features. If you do not want to have Social Features, you can disable this functionality, and we will not provide you with such services.

SOCIAL PLUGINS
Our Website contains links to or features from other sites. This Policy does not cover the privacy practices of third-party websites or features. We use social networks plugins of Facebook, Twitter and YouTube. If you visit our Website while signed in to your social media account, results in the transfer of information about you to the social network. Such information can be linked with your social network account. This data transfer is triggered already when you visit our Website, irrespective whether you interact with the plugin. To prevent this, you must log out of your social network account before visiting our Website. Alternatively, you can disable the social media plugins as offered in our Policy.

Images applied in the policy display

Each section of the text in the privacy policy contained framing image, as presented in figs. 6 to 13 (A.- negative, B.- positive).

A. B.

Figure 6: Images displayed next to the policy section "WHAT DATA WE COLLECT AND USE WHEN YOU VISIT OUR SITE."

A. B.

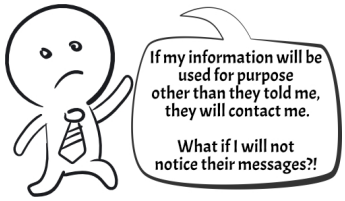
Figure 7: Images displayed next to the policy section "WHEN WE COLLECT YOUR DATA AND WHY."

A. B.

Figure 8: Images displayed next to the policy section "HOW WE DISCLOSE YOUR DATA."

A. B.

Figure 9: Images displayed next to the policy section "HOW WE USE YOUR DATA."



A.

B.

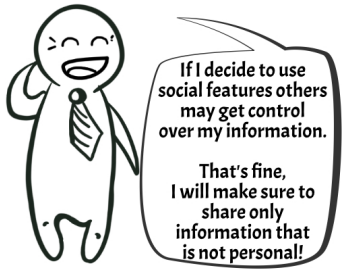
Figure 10: Images displayed next to the policy section "PROCESSING FOR OTHER PURPOSES."

A.

B.

Figure 11: Images displayed next to the policy section "SHARING YOUR DATA."

A.



B.

Figure 12: Images displayed next to the policy section "SOCIAL FEATURES."

A.

B.

Figure 13: Images displayed next to the policy section "SOCIAL PLUGINS."